Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Currently Amended) A system for monitoring locations of movable objects, comprising:

a plurality of beacons mounted in spatial distribution throughout a monitoring area of a building, each beacon transmitting wireless interrogation signals during assigned timeslots of a time division multiple access (TDMA) frame;

a plurality of transponders, each transponder adapted to be attached to a moveable object, and to respond to the interrogation signals received from the beacons only during a pre-determined transponder timeslot of the TDMA frame by echoing frequency-shifted versions of the interrogation signals ("transponder responses"), wherein the transponder responses are received by at least one of the beacons;

a receiver ~~that~~ configured to receive a retransmitted interrogation signal and a retransmitted received transponder response from each beacon, wherein the receiver analyzes signals received from the plurality of beacons and identifies the transponder based on the timing of the transponder response within the TDMA frame;

wherein each beacon wirelessly retransmits ~~an~~ the retransmitted interrogation signal and ~~a~~ the received resulting transponder response to the receiver for analysis, and the receiver determines a time different between the retransmitted interrogation signal and the transponder response retransmitted by the beacon, said time different reflecting a distance between the beacon and the transponder~~.~~; and

a computer system in communication with the receiver, wherein the computer system uses time differences measured by the receiver in combination with a topological tracking method to determine the locations of the objects.

Claim 2. (Cancelled)

Claim 3. (Original) The system as in Claim 1, wherein the plurality of beacons become synchronized with each other by monitoring a phase of an alternating current (AC) power signal on power lines of the building.

Claim 4. (Original) The system as in Claim 3, wherein at least some of the beacons monitor the phase of the AC power signal by monitoring an AC flicker of lights within the building.

Claim 5. (Original) The system as in Claim 1, wherein at least some of the beacons are photo-electrically powered.

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Claim 6. (Original) The system as in Claim 1, wherein the wireless interrogation signals are radio frequency (RF) signals.

Claim 7. (Original) The system as in Claim 1, wherein the wireless interrogation signals are ultrasonic signals.

Claim 8. (Original) The system as in Claim 1, wherein each interrogation signal includes a linear ramp portion in which a frequency of the interrogation signal is ramped linearly over a period of time, and wherein the receiver measures a time difference between the linear ramp portion as included in the transmitted interrogation and transponder response signals received from a beacon.

Claim 9. (Original) The system as in Claim 8, wherein the receiver measures the time difference by detecting, and determining a time difference between, peaks of the linear ramp portion.

Claim 10. (Cancelled)

Claim 11. (Original) The system as in Claim 1, wherein each beacon transmits the interrogation signal and the resulting transponder response to the receiver over AC power lines of the building.

Claim 12. (Cancelled)

Claim 13. (Original) The system as in Claim 1, wherein at least some of the transponders are wristbands adapted to be worn by patients.

Claim 14. (Original) The system as in Claim 1, wherein at least one of the transponders comprises a transponder module which is adapted to be inserted into a disposable wristband.

Claim 15. (Currently Amended) A method of determining the distance between a beacon and a transponder, comprising:

(a) transmitting an interrogation signal by wireless communications from the beacon to the transponder <u>during a TDMA timeslot assigned to the beacon</u> within an interrogation frequency band of the transponder to cause the transponder to return a response signal<u>, the transponder returning the response signal only during a pre-determined transponder timeslot that is a portion of the TDMA timeslot</u>, the response signal being a frequency-shifted version of the interrogation signal;

(b) concurrently with (a), transmitting the interrogation signal <u>within a retransmission frequency band separate from the interrogation frequency band</u> from the beacon to a receiver which is positioned remotely from the beacon;

(c) at the beacon, receiving and retransmitting by wireless communications to the receiver the response signal returned by the transponder, the retransmitted response signal from the beacon being transmitted within the retransmission frequency band; and

(d) with the receiver, determining a time difference between the interrogation signal transmitted by the beacon in (b) and the response signal retransmitted by the beacon in (c), said time difference reflecting a signal propagation time between the beacon and the transponder.

Claim 16. (Original) The method as in Claim 15, wherein the interrogation signal includes a linear ramp portion in which a frequency of the interrogation signal is ramped linearly over a period of time, and wherein (d) comprises the receiver measuring a time different between corresponding linear ramp portions included in the interrogation and response signals received from the beacon.

B1

Claim 17. (Currently Amended) ~~The method as in Claim 15, wherein the interrogation signal includes a root-raised cosine waveform, and wherein (d) comprises the receiver detecting and measuring a time difference between corresponding root-raised cosine waveforms included in the interrogation and response signals received from the beacon~~ A method of determining the distance between a beacon and a transponder, comprising:

(a) transmitting an interrogation signal including a root-raised cosine waveform by wireless communications from the beacon to the transponder within an interrogation frequency band of the transponder to cause the transponder to return a response signal, the response signal being a frequency-shifted version of the interrogation signal;

(b) concurrently with (a), transmitting the interrogation signal from the beacon to a receiver which is positioned remotely from the beacon;

(c) at the beacon, receiving and retransmitting by wireless communications to the receiver the response signal returned by the transponder; and

(d) with the receiver, determining a time different between the root-raised cosine waveforms included in the interrogation signal transmitted by the beacon in (b) and the response signal retransmitted by the beacon in (c), said time different reflecting a signal propagation time between the beacon and the transponder.

Claim 18. (Cancelled)

Claim 19. (Previously Presented) The method as in Claim 19, wherein (b) further comprises transmitting the interrogation signal from the beacon to the receiver at a higher transmission power than a transmission power used in (a) to transmit the interrogation signal.

Claim 20. (Original) The method as in Claim 15, wherein (b) comprises transmitting the interrogation signal to the receiver over power lines of a building.

Claim 21. (Cancelled)

Claim 22. (Original) The method as in Claim 15, further comprising the beacon determining a timing of the TDMA timeslot by monitoring a phase of an AC power signal on power lines of a building.

Claim 23. (Current Amended) A transponder device adapted to be worn by a patient to permit the patient's location to be monitored, the transponder device comprising:

a disposable wristband; and

a transponder module which is adapted to be releasably attached to the disposable wristband, the transponder module including a transponder circuit that is responsive to a wireless interrogation signal received within a first frequency band by echoing the interrogation signal within a second frequency band~~.~~,

wherein the transponder module senses an identifier of the disposable wristband upon attachment to the wristband, the identifier used to determine the timing of the response of the transponder module to the interrogation signal.

Claim 24. (Original) The transponder device as in Claim 23, wherein the disposable wristband includes a battery which powers the transponder module.

Claim 25. (Original) The transponder device as in Claim 24, wherein the battery is a zinc air battery.

Claim 26. (Cancelled)

B1

Claim 27. (Current Amended) The transponder device as in Claim ~~26~~ 23, wherein the identifier is printed on a surface of the wristband in a conductive ink.

Claim 28. (Currently Amended) The transponder device as in Claim ~~26~~ 23, wherein the identifier is encoded within a passive electrical circuit of the disposable wristband.

Claim 29. (Original) The transponder device as in Claim 23, wherein the transponder circuit uses a periodically transmitted synchronization sequence to determine when to echo interrogation signals.

Claim 30. (Currently Amended) The transponder device as in Claim 23, wherein the transponder circuit echoes interrogation signals only during an assigned timeslot determined by the identifier of the disposable wristband.

Claim 31. (Original) The transponder device as in Claim 30, wherein the timeslot is derived from a phase of an AC power signal.

Claim 32. (Original) The transponder device as in Claim 23, wherein the transponder module is adapted to be sterilized between uses.

Claim 33. (Original) The transponder device as in Claim 23, wherein the transponder circuit is responsive to interrogation signals in an ultrasonic band.

Claim 34. (Original) The transponder device as in Claim 23, wherein the transponder circuit is responsive to interrogation signals in a radio frequency band.

Claim 35. (Currently Amended) A disposable wristband adapted for use in monitoring locations of patients, comprising:

a base portion which houses a battery for providing power to a transponder module operable to generate a locating signal, the housing being configured to releasably receive the transponder module such that the transponder module may be removed from the base portion and reused following use by a patient;

a wristband portion attached to the base portion for attachment to the wrist of a patient; and

an identifier portion which embodies an identifier such that the identifier is readable by the transponder module when the transponder module is inserted within the base portion, wherein the operation of the transponder module to generate the locating signal is determined by the identifier.

Claim 36. (Original) The disposable wristband as in Claim 35, wherein the battery is a zinc air battery.

Claim 37. (Original) The disposable wristband as in Claim 35, wherein the identifier is printed on a surface of the housing in conductive ink.

Claim 38. (Original) The disposable wristband as in Claim 35, wherein the identifier is encoded within a passive circuit which is adapted to be measured by the transponder module.

Claim 39. (Original) The disposable wristband as in Claim 35, in combination with a transponder module which is adapted to sense the identifier.